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ABSTRACT

Two projects at the Kansas Early Childhood Institute investigated characteristics of social interaction by handicapped, at risk, and nonhandicapped children. The first project examined patterns of social interaction and play behavior among preschool children in an integrated classroom. A longitudinal observation of four mild to moderately retarded Down's syndrome children (5 to 6.5 years old) and four nonnandicapped Ss (4.5 to 5 years old) was conducted. Results indicated that handicapped and nonhandicapped children preferred the same types of activities. Handicapped children most frequently selected handicapped playmates, and nonhandicapped children usually selected nonhandicapped playmates. Handicapped Ss spent more time engaged in solitary play than nonhandicapped Ss. The second project described the specific social skills and interaction parameters exhibited by 15 normal, at risk, and handicapped preschoolers in a mainstreamed classroom. Handicapped children typically showed delays in social interaction skills commensurate with their general developmental delays; however, there was considerable variability across all types of Ss. Results suggest that altering either the settings or consequences for social interaction will result in increased interactions. Activities that bring the children into physical proximity and play equipment that require more than one child can enhance social interactions. Directly prompting or instructing a child to interact with another child or to enter an activity are also frequently successful. In some cases, teacher praise or the contingent provision of some desirable activity or object when social interaction occurs are useful strategies. (Author/SEW)

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PLAYING AND LEARNING TOGETHER: PATTERNS OF SOCIAL INTERACTION IN HANDICAPPED AND NONHANDICAPPED CHILDREN

by

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Abstract

Two projects at the Kansas Early Childhood Institute have investigated characteristics of social interaction by handicapped, at-risk, and non-handicapped children. The first project examined patterns of social interaction and play behavior among children in an integrated classroom. A longitudinal observation of four Down's Syndrome and four nonhandicapped subjects was conducted. Results indicate that handicapped and nonhandicapped children preferred the same types of activities. Handicapped children most frequently selected handicapped playmates, and nonhandicapped children selected nonhandicapped playmates. Handicapped subjects spent more time engaged in solitary play than nonhandicapped subjects.

The second project described the specific social skills and interaction parameters exhibited by normal, at-risk, and handicapped preschoolers in a mainstreamed classroom. Handicapped children typically showed delays in social interaction skills commensurate with their general developmental delays; however, there was considerable variability across all types of subjects. Results from three types of intervention procedures suggest that altering either the settings or consequences for social interaction will result in increased interactions.

Introduction

The importance of social interaction for optimal development of children's social and academic competence is becoming increasingly apparent. The development of social skills results from the child's interaction with people in the environment and offers a vehicle for the acquisition of information. Early patterns of mother-child interaction illustrate that from birth onward the child engages in interchanges with others in the environment (Brazelton & Tronick, 1980), at first nonverbally through focussed attention and gesture, and later through verbal exchanges (Bates, 1976). It is during these early social interchanges that the child acquires much linguistic and conceptual information (Moerk, 1974; Schachter, 1979).

Recent research suggests that the preschool-aged child's social interaction is an important force in development (cf. Cooke & Apolloni, 1976; Strain, Shores, & Timm, 1977) and a vehicle for social and conceptual learning (Fallows, Cooper, Etzel, LeBlanc, & Ruggles, 1980; Strain, Shores, & Kerr, 1976). Children who lack very basic social skills may have trouble in both academic and social settings. For example, if they cannot attend to adults, verbally or nonverbally initiate to adults or peers, and verbally or nonverbally respond to other's initiations, they will have difficulty when they need to recruit attention from teachers and when their participation in activities depends on cooperation with peers.

Social interaction is especially important to preschool handicapped children because it is a vehicle for learning and for observing models of appropriate behavior. Further, social interaction with peers is an opportunity for the handicapped child to use skills and to contact naturally reinforcing events in the environment. For example, generalization of

newly learned language occurs most readily when there are regular opportunities for the child to engage in verbal exchanges (Warren & Rogers-Warren, 1980). Social interaction offers opportunities which formalized training cannot provide--the opportunity to see new skills being used in the appropriate context and to learn forms that are specifically relevant to the particular setting.

Social interaction is typically more difficult for the handicapped child than for the normal child. Handicapped children are characterized by verbal and motoric difficulties or delays that are likely to impede communication. These deficiencies do not necessarily preclude interaction with peers in preschool settings, however. Typically, activities are available that require a minimum of skilled behavior, and interaction can occur at a variety of levels.

Social interaction, at its most basic level, is the presence of two persons in a relatively restricted area. In the preschool classroom, the presence of a group of children automatically creates this simple level of social interaction. When children are together in the same small area--at a work table or in an art area, for example--they will also have opportunities to observe each other in the course of their activities. Parallel play (use of the same material or participation in the same activity without direct interaction) may arise in such contexts and represents a second, slightly higher level of interaction. Children may participate in parallel or cooperative play (sharing of materials or jointly participating in construction or operation of materials) without conversing; thus, interaction can occur without verbal skills. Verbal interactions, which are cooperative by their nature, can occur at all levels, from simple exchange of greetings, to expression of one-word requests, to complex conversations.

Researchers[1] at the Kansas Early Childhood Institute are investigating social interaction among normal, at-risk, and handicapped children. Two questions have been studied in longitudinal research projects: (a) What are the patterns of development of social skills in preschool children? (b) What social interaction patterns emerge when handicapped and nonhandicapped children are enrolled in the same settings? Representative findings are reported from two projects. The first project, directed by Nancy Peterson, focuses on the study of social interaction and play behavior of handicapped and nonhandicapped preschoolers in a variety of preschool settings. Several settings have been studied, including mainstreamed, reverse mainstreamed, and integrated classrooms. Data reported here are from a reverse mainstreamed classroom (one which was designed primarily for handicapped children but which also enrolls several nonhandicapped children to serve as models). The second project, directed by Alita Cooper, has analyzed the social development of nearly 70 normal, at-risk, and handicapped children. Representative developmental data and three intervention strategies to increase social skills are described.

STUDY I: Social Interaction Between Handicapped and Nonhandicapped Preschoolers in Integrated Classroom and Playground Settings.

A primary assumption in integrating handicapped children with their nonhandicapped peers is that both groups will benefit through their mutual association. Handicapped children, especially, can profit from the opportunity to observe, interact with, and imitate their normal and perhaps more skilled peers. Ideally, an integrated environment provides a more stimulating, normalizing educational setting for a handicapped child than does a preschool enrolling only developmentally disabled children (Guralnick,

1980; Peterson, 1978; Peterson & Haralick, 1977). The degree to which these benefits are realized, however, depends on the extent to which handicapped and nonhandicapped children actually interact.

The purpose of this study was to examine the play behavior and social interactions of handicapped and nonhandicapped preschoolers in two settings: the classroom freeplay period and the outdoor playground. Specifically, children's social behavior was analyzed in terms of (a) the play areas where they spent their time, (b) the types of play behavior exhibited, (c) the nature and frequency of social interactions between handicapped and nonhandicapped peers, and (d) the types of play behavior exhibited when certain playmate selections were made by handicapped and nonhandicapped subjects.

Eight children (four normal and four handicapped) were observed daily during classroom playground activities. The handicapped children included two males and two females, ranging in age from 5 to 6½ years. All were diagnosed as having Down's Syndrome with mild to moderate retardation. The nonhandicapped children also included two males and two females who ranged in age from 4½ to 5 years. All eight children were enrolled in an early intervention program designed primarily for handicapped children; nonhandicapped children were enrolled in the program to serve as models; children other than those in the study were present in both the playground and classroom settings. The majority of the children in both settings were handicapped, the ratio being 60% handicapped to 40% nonhandicapped.

Data were collected using the Preschool Observation System for Social Interaction - Research Edition (Peterson, 1979), which applied a time sampling technique for observing subjects and recording data during 30-sec intervals. For 8 weeks observers watched the children and recorded the following information:

1. Play area in which the observed child was located (four of seven areas were available each day in the classroom; 12 play areas were available on the playground).

2. Availability of handicapped and nonhandicapped peers for interaction (the number of handicapped peers, nonhandicapped peers, and teachers present in the same play area as the observed child).

3. Type of play exhibited by the observed child (included no play, solitary play, parallel play, and cooperative play).

4. Playmates with whom the observed child interacted (included four possibilities: no one, handicapped peer(s), nonhandicapped peer(s), or a combination of handicapped and nonhandicapped peers).

Data were collected daily on each of the eight subjects for 8 weeks. Two 5-minute samples were collected each day in the classroom and on the playground (approximately 6½ hours of data were collected for each subject). Interobserver reliability was checked two to three times weekly.

The results of this study are summarized in regard to several practical questions:

What Play Areas did Handicapped and Nonhandicapped Subjects Prefer?

The most and least frequented areas on the playground were similar for handicapped and nonhandicapped subjects. The "miscellaneous area" (space between all major pieces of playground equipment where children played without

the use of any equipment) ranked highest for both groups. Climbers (jungle gyms, ladders, and climbing towers) ranked second for both groups. On the playground, both groups frequently played in the same areas, and thus, were in close proximity to each other. The most preferred area in the classroom was the same for both groups (P.E. or gross motor activity area), and the least preferred area was also the same for both groups. Beyond these shared preferences, handicapped subjects spent their time in more structured areas of the classroom (art table and table work), whereas nonhandicapped children preferred more creative, nonstructured play areas (manipulative floor play and the free choice area that contained books, puppets, and other similar items).

What Types of Play Behavior were Exhibited by Handicapped and Nonhandicapped Children?

Although distributions of time spent in no-play, solitary play, parallel play, and cooperative play were generally similar for both groups, handicapped subjects showed higher levels of solitary play than parallel play in both the playground and classroom settings. Nonhandicapped subjects engaged in more parallel than solitary play in both settings. Comparisons between handicapped and nonhandicapped groups showed a significant difference ($p < .05$) in the amount of solitary play on the playground, but not in the classroom. Both groups exhibited similar rates of cooperative play on the playground (approximately 6%) and in the classroom (approximatley 3-4%).

What Types of Playmates did Handicapped and Nonhandicapped Subjects Interact With?

Analyses of each group's interactions showed that handicapped and non-handicapped children interacted with each other, but that handicapped subjects

interacted more with handicapped peers and that nonhandicapped subjects interacted more with nonhandicapped peers. This finding was consistent across settings, although there was considerable variability among subjects. On the average, handicapped subjects selected handicapped playmates about one and one-half times as frequently as they selected nonhandicapped playmates. Nonhandicapped children selected nonhandicapped playmates twice as often as they selected handicapped peers. Because there were more handicapped than nonhandicapped children in the class, the ratio favored selection of handicapped playmates. Thus, it appears that nonhandicapped children were actively seeking nonhandicapped playmates. Test comparisons between handicapped and nonhandicapped subjects' playmate preferences were significant on the playground ($p < .5$), but not in the classroom.

What Type of Play was Exhibited when Subjects Played with Certain Playmate Types on the Playground or in the Classroom?

In general, parallel play exceeded cooperative play for all combinations of handicapped and nonhandicapped playmates, suggesting that the type of play was not strongly influenced by the type of peer. Very little cooperative play was observed even among the nonhandicapped peers—perhaps an expected finding for the age and developmental level of all the children and the way in which cooperative behavior was defined in the observation code. (To be recorded as cooperative, play had to be a mutual give-and-take in which one or more children were contributing toward a mutual goal).

Interaction between handicapped and nonhandicapped children occurred in all activities in the classroom and on the playground, though children preferred like-playmates. Handicapped children spend more time playing alone than nonhandicapped children. Rates of cooperative play were low for

all combinations of playmates. Handicapped children showed larger proportions of parallel, as opposed to cooperative, play than nonhandicapped children. Playmates of both types were available in all play areas, as verified by the activity preference data; thus, interaction with playmates of similar skill levels seemed to be a matter of choice and not of simple availability.

STUDY II: Monitoring and Intervention Strategies in a Mainstreamed Preschool Setting

The importance of early interaction skills to social and nonsocial development makes it desirable that we develop strategies for monitoring and increasing these skills. A program of research at the Early Childhood Institute has developed and incorporated techniques for measuring and enhancing social skills. A half-day preschool class enrolls 15 children between 2½ and 5 years of age. The class includes normal children as well as children whose physical and behavioral problems range from being at-risk for developmental delay to being severely handicapped. The classroom is staffed by a laboratory supervisor and two to four graduate and undergraduate student teachers.

Social interaction of individual children is regularly monitored and, when problems in social interaction are noted, strategies are designed to remediate these problems. Data describing children's interactions are obtained through the use of a cooperative play code (Cooper, 1980). Six categories of social interaction with peers and activities are observed and recorded; unoccupied, solitary play, parallel play, verbal cooperation, nonverbal cooperation, and aggressive interactions. Several aspects of teacher behavior (teacher attention, direct and indirect prompts) during interaction with the observed child are recorded.

Data are collected for individual children during periodic 5- or 6-minute observations. Substantial amounts of information (often as much as 50 hours of data) describing the social interactions of individual children are accumulated. Not only can individual interaction patterns be characterized, but also information may be combined across class members to determine the patterns of social interaction which are typical for this particular classroom. Such normative information provides a standard against which the behavior of individual children might be evaluated. When a child's behavior departs from this standard to the extent that some intervention seems desirable, the normative data provide goals for those interventions.

When the social behavior of normal children is compared to that of handicapped children of approximately the same age, it is seen that handicapped children frequently display considerably less cooperative interaction, overall. Interactions of handicapped children often are more predominantly nonverbal than those of their nonhandicapped peers. Following a period of inclusion in regular classroom activities, the levels and ratio of the verbal and nonverbal interactions of handicapped children typically come to resemble that of nonhandicapped children more closely. The fact that this effect occurs frequently suggests the therapeutic classroom environment facilitates the emergence of social behaviors.

Occasionally, additional intervention strategies to increase specific aspects of children's social interactions are necessary. Three types of behaviorally based interventions have been used: First, the environment can be arranged to provide some extrinsic reward, contingent on the occurrence of desired social behavior. Second, environmental events that precede the occurrence of social interactions can be manipulated to increase the likeli-

hood of social behavior. Manipulations in this category include the use of instructions, prompts from teachers or peers, or the arrangement of activities that encourage social interaction between children.

The third type of intervention strategy, exemplified in a study by Cooper and LeBlanc (1972), consists of a combination of the first two strategies. In this study, conducted with two normal 3-year-old children, teacher attention and activities and materials available in the classroom were manipulated. The conditions of teacher attention included (a) baseline, (b) a condition in which the teachers increased their attention to the children when the children were engaged in cooperative play, and (c) a condition in which the teachers increased their attention to cooperative play and increased the number of times they prompted the children to interact cooperatively. In addition, two arrangements of classroom activities were compared. In one condition (A), those activities and materials which were typically available in the classroom were available. In the other condition (B), the physical environment was "enhanced" by including activities and materials that were thought likely to facilitate cooperative interaction. The results of this study show that cooperative social interaction was not influenced when only teacher attention (b or c) or classroom activities (B) were changed. Social interaction did increase when the enhanced environment was combined with teacher attention and prompts for cooperative interaction (c and B). The increase in the levels of cooperative interaction were maintained when prompts and teacher attention were returned to their initial levels but the environment was kept enhanced (a and B). These data suggest that the enhanced environment was instrumental in producing the higher level of cooperative interaction. In a final condition, in which the enhanced

environment was removed but teacher attention and primes were maintained (c and B), the teacher behavior was sufficient to maintain a fairly high level of cooperative interaction. The contrast between this condition and the earlier condition, in which attention and prompts were present in the typical environment, is important. It is doubtful that prompts would have been functional if the children were not already able to perform the behavior requested by the prompt. Once the children had experience in playing cooperatively they were able to comply with the teacher's prompts.

Another study further illustrates the importance of manipulating the setting in promoting children's social interaction. The subject was a 4½-year-old child who evidenced severely delayed social development. The child produced few spontaneous verbalizations to peers and spent much time wandering around the classroom, uninvolved in classroom activities. A highly social peer was selected to act as an aide in attempting to increase the subject's social interaction in a special training setting. Two days each week, the subject and the aide were taken by a teacher to an area outside the classroom and allowed to play together during an activity designed to increase the likelihood of interaction. The teacher frequently prompted the subject to interact in the training settings. The training activity was then moved into the classroom to increase the probability that the subject would maintain the increased level of social interaction on returning to the classroom. When the special training sessions began, social interaction in the special setting, as well as in the classroom, increased. However, the subject's performance was highly variable. A third intervention strategy was implemented in the last portion of the study. Special training sessions took place every day and direct and indirect primes to social interaction were

increased in the classroom. This increase in training sessions and prompts in the classroom produced a more consistent level of social interaction than the previous treatment condition.

Having the same activity present in the training setting and in the classroom was important. Experience with the activity in the training setting gave the child an opportunity to interact with a peer and to practice social behaviors approrpiate for the activity. Moving the activity into the classroom facilitated the display of newly learned social skills in that setting. Since the peer aide and the teacher were also in the classroom, their presence may have helped to make the two settings more alike and facilitated transfer of social behavior from one setting to the other.

Prompts in the classroom were not effective until they were combined with special training because the subject first needed to learn how to interact socially before it was possible to respond to the prompts. Early in the study, peers had seldom initiated social interactions with the subject. Apparently, the other children had learned that their initiations seldom resulted in social interaction and that the subject frequently responded to such initiations with aggressive outbursts. Later, when the subject's level of appropriate social interaction level was higher, other children initiated more interactions. Social isolation may have a spiraling effect: Low levels of responding to peers resulted in lower levels of peer initiations, and so forth. The goal of an intervention strategy with isolate children whould be to change the patterns of peer behavior directed toward the child and to change the isolate child's behavior toward peers.

DISCUSSION

The results of these projects have numerous implications. To achieve optimal integration, teachers may not be able to rely upon the automatic and spontaneous occurrence of social interactions between handicapped and nonhandicapped children. Interaction will occur, but special procedures to increase the rate of such encounters may be needed. To maximize the social development of all children in a setting, it may be necessary to identify those children whose behavior is inappropriate and to identify the parameters for remediation. Regular, developmental monitoring of social interaction skills of children is important, but it may be necessary to tailor assessment procedures to individual settings and children. By adjusting the frequency of observation periods, the number and nature of social behaviors to be quantified, and the personnel conducting the evaluations, some viable observation tactics can almost always be arranged.

Evaluations of social behavior should be conducted regularly, and decisions regarding a child's status should be made on the basis of a series of observations because social interaction data are likely to be variable. A single evaluation may provide an erroneous impression of the child's characteristic social interaction patterns. Variability is important; a child who usually exhibits highly variable patterns of interaction may be as much in need of special support as the child whose level of social interaction is generally low.

A child's level of social interaction should always be evaluated in reference to the levels of behavior considered typical or desirable in a particular setting. Setting-specific norms may be established by making a composite (an average) of the levels of these behaviors exhibited by all or a selected subgroup of children in the setting.

One strategy for increasing appropriate social behaviors involves manipulating classroom activities or play equipment. Some classroom activities (certain art activities, table work or academic or preacademic activities) are conducive to solitary or parallel play; most of these activities limit possibilities for social interaction. Social interactions may be enhanced by including more activities which bring the children into physical proximity, by including play equipment which requires more than one child, and by organizing the play tasks so that children need to select partners. Play activities can be organized so that reciprocal responses from partners do not require equal skills.

Specific tactics to encourage interaction between handicapped and non-handicapped peers may be needed in addition to arranging their being together in activity areas. Such strategies include changing the teacher interaction patterns that encourage children to seek out teachers rather than peers as play partners. Strategies involving various modes of prompting may prove useful for children who respond consistently to teacher instruction. Directly prompting or instructing the target child to interact with another child or to enter an activity or area in which interaction is likely to occur is frequently successful. An alternative strategy, referred to as indirect prompting, involves prompting a peer to initiate interaction with or to invite the participation of the child who is the target of the intervention.

In part, children develop good social interaction skills because social interaction can be, in itself, a rewarding experience. For some children, particularly handicapped children, social interaction has not developed as a desirable, positive experience, and thus, there is little motivation to engage in such activities. In this case, it may be necessary to provide

some external support; teacher praise or the contingent provision of some desirable activity or object when social interaction does occur are useful strategies. Often such procedures are needed only temporarily. Once the child has had positive experiences interacting with peers, the interaction itself if sufficiently rewarding to maintain the behavior.

To a large extent, the degree of difficulty in improving the quality of a child's social interaction is determined by whether interaction skills are present at all, or whether the skills are available but need to be increased. When some social behavior is already exhibited, simply prompting the child into interactive situations, manipulating activities, or rewarding interaction when it does occur may be sufficient to produce desired increases in social interaction. If a child has not learned basic interactive skills, the child may have to be taught very specific components of social interaction behaviors. Rehersal, role playing, or the help of peer aides or confederates may be necessary.

Social interaction is a critical aspect of development during the preschool and early primary grade years. Thus, the analysis of its development in normal, at-risk, and handicapped children is important to planning comprehensive educational strategies. In designing intervention programs, curricula, and classroom settings for the young handicapped child, the issue of developing social as well as academic skills should be a foremost consideration. Success in helping children establish functional social repertoires and acquire interaction skills that lead to other learning and to positive interaction with adults and peers is very likely to bring successful remediation of the effects of handicapping conditions.

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Footnotes

[1]Research reported in this paper has been conducted by Nancy Peterson and Alita Cooper and their colleagues and students. Copies of additional reports of other projects are available from either investigator through the Kansas Early Childhood Institute, 130 Haworth, University of Kansas, Lawrence, Kansas.